dunetpc - Task #25582

Configure dataprep for Iceberg run 5

03/03/2021 01:51 PM - David Adams

Status:	Work in progress	**Start date:**	03/03/2021
Priority:	Normal	**Due date:**	
Assignee:	David Adams	**% Done:**	0%
Category:		**Estimated time:**	0.00 hour
Target version:			

Description

Run 5 of Iceberg is underway and I am developing dataprep configurations.

History

#1 - 03/03/2021 02:04 PM - David Adams

- Assignee set to David Adams

I did a lot of work on this last week. Changes are in dunetpc.

Dataprep sequences are in dune/DataPrep/fcl/iceberg_dataprep_services.fcl. Those for Iceberg 5 have the names ib5_dataprep_tools_*. These need tuning and testing.

Last week I added bad channels for the two missing FEMBs and put in a rough calibration for run 5a (14 mV/fC, 1.0 us) based on quick looks at a few of the pulser runs: 0.051 ke/(ADC-tick) for all channels. Tom had a more careful look and using his report of 447 ADC-tick/DAC, I changed the gain to 0.0479 ke/ADC-tick. These values are about twice what we had for protoDUNE which is what I expect for halving the shaping time if the ADC gain is the same. Dave C has indicated we will likely increase the ADC gain.

#2 - 03/03/2021 02:15 PM - David Adams

The tail/pedestal removal is sometimes failing. It was copied from Iceberg 4 and it appears tails are being removed for induction channels. I disabled that for both Iceberg 4 and 5. Note that the tool is still run to improve the pedestal finding. I also raised the signal finder threshold from 0.4 to 1.0 ke as we have much more sample noise in run 5a than 4b presumably due to the change in shaping. There is also noise from pickup and ADCs evident in other channels.

#3 - 03/03/2021 02:27 PM - Thomas Junk

At some point the FEMBs are supposed to be made without AC coupling. There's still a very long time constant coupling from the CR boards.

#4 - 03/08/2021 11:14 AM - David Adams

I have added bad and noisy channels for Iceberg 5.

I am moving the Iceberg dataprep sequences to a new file and renaming them to be non-prolog. I will update dunetpc to use the new definitions. Do we have any users of these sequences outside of dunetpc?

#5 - 03/09/2021 08:01 AM - David Adams

I have added a rough calibration for run 5b for data soon to be taken with 14 mV/fC gain, 2 us shaping and 900 mV baseline.

Both iceberg_dataprep_services.fcl and iceberg_dataprep_sequences.fcl are in dunetpc. After more validation, I plan to drop the former.

Commit and push current changes to dunetpc.